

ASAP

Work Order ID 134983

134983

Page 1

July 23, 2015 9:37:44 AM

Item ID: D3180-042 Accept *N9000040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Strut Assembly, RH

Start Date: 7/23/2015 Start Qty: 2.00 *2*

Required Date: 8/7/2015 Req'd Qty: 2.00 *2*

Reference: Cust Item ID:

Customer:

Approvals: Process Plan: SL 20150723 Tooling: Date: Run Start *NR1*

QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3180	C ✓								
100	NC BRAKE	0.00							
100						3	FF		JUL 28 2015
Brake NC	Memo	0.02							
Brake NC	1-Punch Tubing to length as per Dwg D3180-2 using DT8313, DWG D2638								
110	Small Fab	0.00							
110						3	FF		JUL 28 2015
Small Fab	Memo	0.05							
Small Fab	1-Drill holes as per Dwg D3180								
	2-Bend strut as per Dwg D3180								
	3-Deburr edges								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

July 23, 2015 9:37:44 AM

Page 2

Setup	Start	*NS1*
	Stop	*NS2*

Cust Item ID:
Customer:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

120	QC5- Inspect part completeness to step on W/O	0.00
-----	---	------

0.00

6

1

ENC 38
8-89

JUL 20 2015
P.T.O.

Memo

START TIME: 10:00 AM
OVEN TEMPERATURE: 320 °C
FINISH TIME: 10:30 AM

0.03

x2 of 13/07/20

0.00

②

DAS
38
9-89

JUL 29 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>134983</u> Part No. <u>D 3180-042</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☒</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☒	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Large Fab ☐	Composite ☐	Supplier ☐																																																																					
Date: <u>15-07-29</u>		Step #: _____		QTY Effective: <u>1</u>			MRB (QSI042) Approval																																																																
Description Work Order Deviation				Disposition																																																																			
<u>Cut extra one for template</u>				<u>use as template</u>																																																																			
				Completed By <u>38</u> <u>9-89</u> <u>JUL 29 2015</u>																																																																			
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OTHER: <u>Template</u>																																																																							

Work Order ID 134983

July 23, 2015 9:37:44 AM

134983

Page 3

Item ID: D3180-042

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Strut Assembly, RH

Stop

NS2

Start Date: 7/23/2015 Start Qty: 2.00

2

Cust Item ID:

Required Date: 8/7/2015 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

Small Fab

0.00

150

Small Fab

Memo

0.02

Small Fab

1-Assemble as per Dwg D3180

2

FF

JUL 29 2015

160

QC5- Inspect part completeness to step on W/O

0.00

160

QC

Memo

0.00

Quality Control

2

DAS
38
9-89

AUG 04 2015

170

Identify as per dwg & Stock Location: ST370

0.00

170

Packaging

Memo

0.00

Packaging

2

J.A

DAS
27
9-89

AUG 04 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 134983

July 23, 2015 9:37:44 AM

134983

Page 4

Item ID: D3180-042

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Strut Assembly, RH

Start Date: 7/23/2015 Start Qty: 2.00

2

Cust Item ID:

Required Date: 8/7/2015 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursTool ID Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.00

Quality Control

SN 20150805

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Picklist Print

July 23, 2015 9:39:03 AM

Page 1

Work Order ID: 134983

134983

Parent Item: D3180-042

D3180-042

Parent Item Name: Strut Assembly, RH

Start Date: 7/23/2015

Required Date: 8/7/2015

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A 14.04.11 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2690-6 *D2690-6* Lanyard		Manufactured	No				Each	36.0000		2			
									**		FF	JUL 29 2015	
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				ST009			10						
					134004		10						
				ST012a			26						
					<u>134527</u>		26			2			
M304TR0.750W.065 *M304TR0 750W 065* 304 RD Tube .750 x .065W		Purchased	No				f	158.9124		7.543789			
									**		FF	JUL 28 2015	
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				GA002			158.9124						
					114002		10						
					118390		2						
					<u>m129493</u>		146.9124			7.5437 11.3155			
D2022-101 *D2022-101* Spacer		Manufactured	No				Each	170.0000		4			
									**		FF	JUL 29 2015	
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				ST002			80						
					<u>107903</u>		80			4			
				ST012a			90						
					132703		90						

Picklist Print

July 23, 2015 9:39:03 AM

Page 2

Work Order ID: 134983

Parent Item: D3180-042

Parent Item Name: Strut Assembly, RH

134983

D3180-042

Start Date: 7/23/2015

Required Date: 8/7/2015

Start Qty: 2.00

Required Qty: 2.00

A1449 Purchased No

Each 1,063.000 2

A1449

Grommet

FF

JUL 29 2015

Location

Loc Qty

Loc Code

ST548

1063

1487

1063

Each

2.0000

2

FF

JUL 29 2015

MS17984-C310

Purchased No

MS17984-C310

Quick Release Pin

Location

Loc Qty

Loc Code

ST315

2

m130953

1

m132699

1

Each

1,184.000

1

1

2

FF

JUL 29 2015

MS21042L3

Purchased No

MS21042L3

Nut

Location

Loc Qty

Loc Code

FP001

393

M130922

393

GA

323

M131317

323

ST305

468

116549

12

126333

49

M128754

2

M132123

17

M132382

388

2

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Shop Packet Print

Page 2

Picklist Print

July 23, 2015 9:39:04 AM

Page 3

Work Order ID: 134983

134983

Parent Item: D3180-042

D3180-042

Parent Item Name: Strut Assembly, RH

Start Date: 7/23/2015

Required Date: 8/7/2015

Start Qty: 2.00

Required Qty: 2.00

MS27039-1-10

Purchased

No

Each

679.0000

2

MS27039-1-10

SCREW

FF

JUL 29 2015

Location

Loc Qty

Loc Code

CA

41

m128635

41

GA

234

m129541

234

ST273A

200

m132677

200

ST285

204

m123522

2

m130358

2

m132640

200

2

NAS1149D0363J

Purchased

No

Each

1,804.000

6

NAS1149D0363.J

Washer

FF

JUL 29 2015

Location

Loc Qty

Loc Code

CA

569

m130799

569

GA

1043

m128429

134

m132677

909

ST269

192

m126319

7

m131618

1

m132317

184

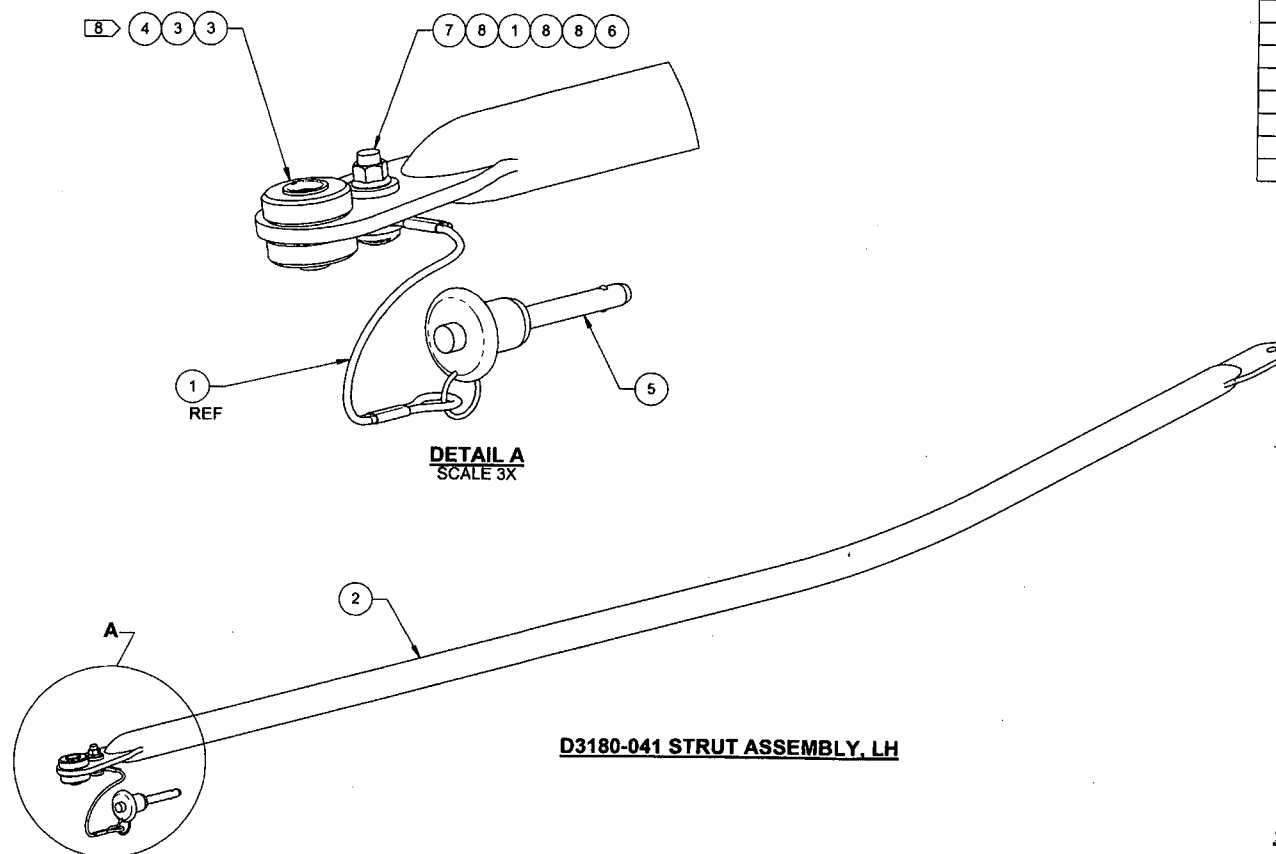
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July 23, 2015 9:39:04 AM

Shop Packet Print

Page 3

ITEM	QTY -041	P/N	DESCRIPTION
	X	D3180-041	STRUT ASSEMBLY, LH
1	1	D2690-6	LANYARD
2	1	D3180-1	STRUT
3	2	D2022-101	SPACER
4	1	A1449	GROMMET
5	1	MS17984-C310	PIN, QUICK RELEASE
6	1	MS21042L3	NUT, SELF-LOCKING
7	1	MS27039-1-10	SCREW, PAN-HEAD
8	3	NAS1149D0363J	WASHER



NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3180-041" AND BATCH NUMBER PER QSI 044 6.1.
- 7) WEIGHT: 1.86 lbs
- 8) SWAGE D2022-101 SPACERS ONTO D3180-1 STRUT USING A1449 GROMMET

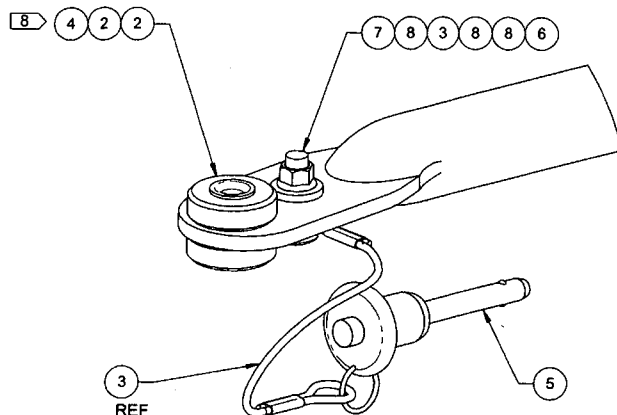
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2014-10-04

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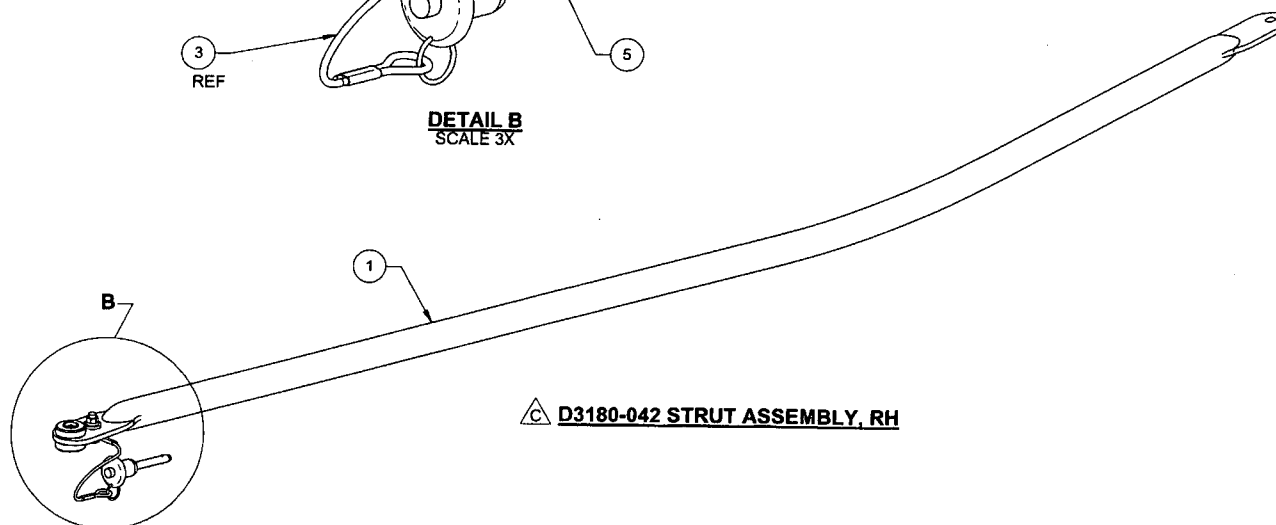
C	ADD D3180-042/-2 (SHEETS 2 AND 4).	REF: NCR14-3457.	MB	14.03.24
B	CURVE ADDED		DC	07.05.23
A	NEW ISSUE		RF	03.01.06
REV.	DESCRIPTION		BY	DATE
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		
DRAWN	MB			
CHECKED	AP	DRAWING NO.	REV. C	
MFG. APPR.	JLM	D3180		SHEET 1 OF 4
APPROVED	MP	TITLE	SCALE	
DE APPR.	DS	STRUT ASSEMBLY	NTS	
DATE	14.03.24	COPYRIGHT © 2003 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		

APPROVED

ITEM	QTY -042	P/N	DESCRIPTION
	X	D3180-042	STRUT ASSEMBLY, RH
1	1	D3180-2	STRUT
2	2	D2022-101	SPACER
3	1	D2690-6	LANYARD
4	1	A1449	GROMMET
5	1	MS17984-C310	PIN, QUICK RELEASE
6	1	MS21042L3	NUT, SELF-LOCKING
7	1	MS27039-1-10	SCREW, PAN-HEAD
8	3	NAS1149D0363J	WASHER



DETAIL B
SCALE 3X



D3180-042 STRUT ASSEMBLY, RH

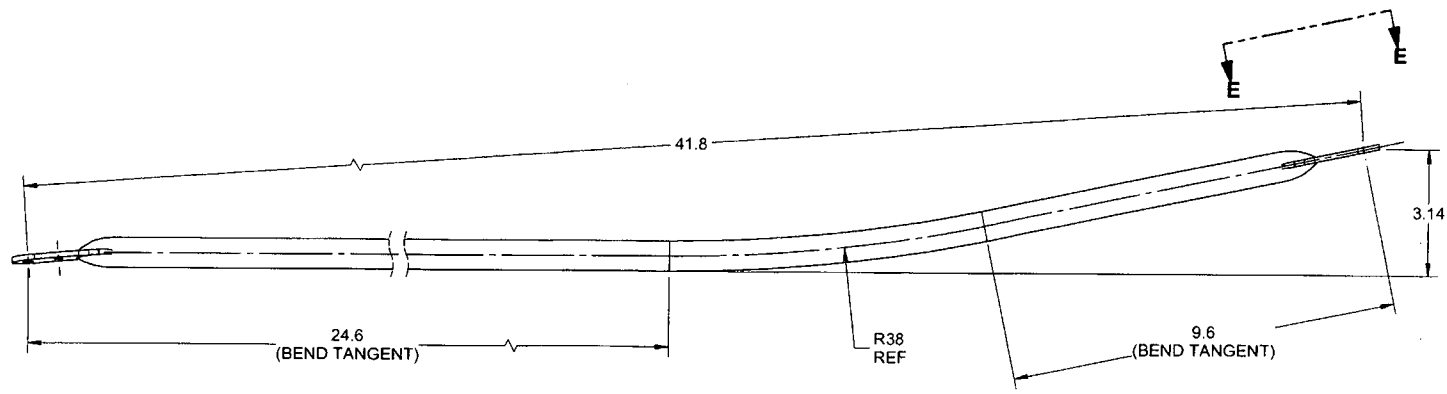
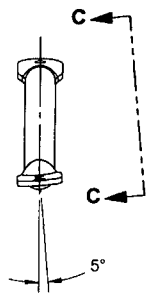
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3180-042" AND BATCH NUMBER PER QSI 044 6.1
- 7) WEIGHT: 1.86 lbs
- 8) SWAGE D2022-101 SPACERS ONTO D3180-2 STRUT USING A1449 GROMMET

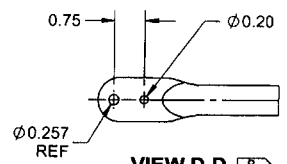
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2014-10-04

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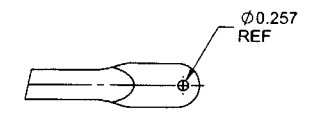
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DRAWN	MB		
CHECKED	AP	DRAWING NO.	REV. C
MFG. APPR.	JLM	D3180	SHEET 2 OF 4
APPROVED	MP	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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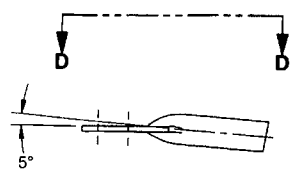
D3180-1 STRUT



VIEW D-D 8



VIEW E-E 8



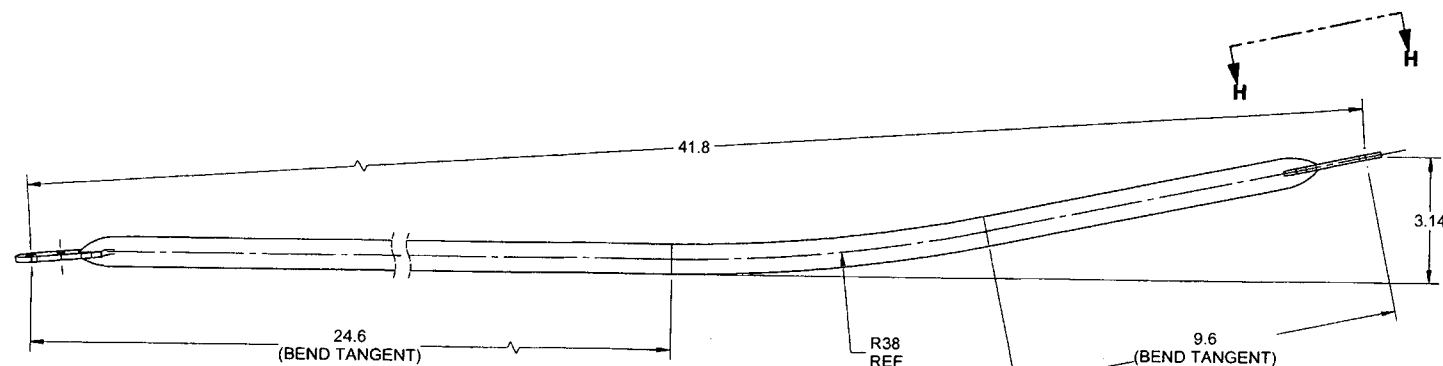
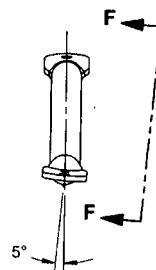
VIEW C-C

NOTES:

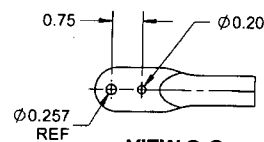
- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SEAMLESS ROUND TUBING
Ø 0.75 X 0.065 WALL, PER ASTM A213 OR ASME SA213 OR ASTM A269
REF. DART SPEC. M304TR0.750W.065
- 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.82 lbs
- 8) PUNCH: PER SPEC. CONTROL DWG D2638

RELEASED
2014-10-04

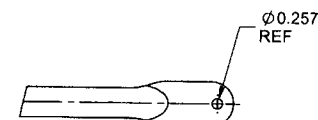
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	DRAWN	MB		
	CHECKED	AP	DRAWING NO.	REV. C
	MFG. APPR.	JLM	D3180	SHEET 3 OF 4
	APPROVED	MP	TITLE	SCALE
	DE APPR.	DS	STRUT ASSEMBLY	NTS
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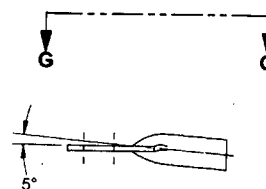
D3180-2 STRUT



VIEW G-G



VIEW H-H



SECTION F-F

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SEAMLESS ROUND TUBING
Ø 0.75 X 0.065 WALL, PER ASTM A213 OR ASME SA213 OR ASTM A269
REF. DART SPEC. M304TR0.750W.065
- 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.82 lbs
- 8) PUNCH: PER SPEC. CONTROL DWG D2638

RELEASED
2014-10-04

APPROVED

DESIGN	DS	DART AEROSPACE LTD	
DRAWN	MB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AP	DRAWING NO.	REV. C
MFG. APPR.	JLM	D3180	SHEET 4 OF 4
APPROVED	MP	TITLE	SCALE
DE APPR.	DS	STRUT ASSEMBLY	NTS
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